DOCUMENT RESUME

ED 056 857 SE 011 275

TITLE A New Role for American Education.
INSTITUTION Office of Education (DHEW), Washington, D.C.
PUB DATE 19 May 70
NOTE 51p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Educational Development; Educational Needs; Educational Philosophy; *Environmental Education; Federal State Relationship; *Program Planning

ABSTRACT

The role of education in developing man-environment relationships is portrayed in this essay by the Office of Education (OE). Environmental/Ecological Education (EEE) is defined as the way to increase an individual's awareness, appreciation, understanding, motivation for action, and skills necessary to maintain his world and enjoy life. Further, for American education to be successful in this regard, it must formulate a strategy that is addressed to the individual in his own environment. Within this context, an EEE continuum is described, elaborating a range of teaching-learning activities at various levels of education. Included are: (1) formal and nonformal programs of environmental education, (2) training programs for educational personnel, manpower development, and professional education, and (3) assessment activities to determine priorities and assist in planning environmental education programs. In developing an educational response to the problem, OE advocates state plans for EEE, together with action-oriented curricula developed by individual school systems, coordination of community environmental action programs, and creation of state councils for environmental education. The regional and national roles of OE in supporting local programs are also presented. To show how OE plans to promote the EEE effort, activities planned by the Office during 1970 are outlined. (BL)

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A NEW ROLE FOR AMERICAN EDUCATION

MAY 19, 1970

OFFICE OF EDUCATION
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C. 20202

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I. MAN AND HIS ENVIRONMENT

At first man lived in harmony with his environment and was governed by it. Then he acquired tools and fire and he began to change the world about himself, for his own purposes and to his own end. While his numbers were few, his environment was sufficiently flexible to restore itself after his passage. Then man discovered agriculture and gained a relative abundance of food and clothing, and he established homes and then cities. With the beginnings of civilization and his growing weight, in numbers and influence, man changed his environment irrevocably.

Babylon and Nineveh rose to dizzy heights and then fell into ruins because their inhabitants lost their agricultural base through erosion and leaching of the soil and siltation of irrigation systems. The great centers of Mayan learning reverted to jungle for these or some other ecological reasons. The story was repeated in Africa and Asia. Civilization never struck a balance with its environment (except in a few instances and to some degree, as in pre-industrial Japan).

The lessons of history are learned slowly. In America, our teachers have included Henry David Thoreau, John Muir, Theodore Roosevelt, and Aldo Leopold. Their message is that our environment is fragile, our resources are finite. Through our great numbers and insatiable demands, and with the power of science and technology, we disrupt the essential balance and interdependence of life. Black smoke and yellow fumes have polluted our atmosphere. Our lakes and rivers die from phosphates in household wastes and nitrates washed from the soil. We cover the Earth with concrete and steel. For many millions of people, living has become mere existence. Many "lesser" species have become extinct, and mankind (seemingly) races toward the same fate.

The ultimate problem (when we consider the awesome potentials of atomic devices) is survival. The immediate goal is humane living. The issue is learning about man's relationships with nature, his dependence upon his environment, the effect of his decisions and his actions upon his world. We must acknowledge and accept the need for new attitudes, a new philosophy of life, and new ways to live. These are the dictates of human ecology.

A. Overwhelming Technology

Science and technology have given us the capability of radically changing our environment. Today we have many well known examples, ranging from the effects of strip mining in Pennsylvania and West Virginia to the surprising tenacity and spread of DDT. DDT, principally used on agricultural land in the United States, is now found in the tissues of penguins at the South Pole and in polar bears at the North Pole. The watertable in many areas continues to fall, not merely from water-use but because we divert rain runoff to the sea. A large region in the Atlantic, off New York, is without life as a result of dumping sewage. Oxygen recycling plankton in vast areas of the ocean have died abruptly from herbicides and pesticides washed off the land.

Catastrophes greater than these have been projected, and the possibilities are real. The sobering truth is, as Garrett Hardin of the University of California writes, "We can never do merely one thing." The reactions and interactions of everything mankind does are great and can never be known fully.

B. American Consumerism.

Two hundred million high-living Americans consume half of the world's harvest of resources. As a people, we recklessly and thoughtlessly consume our natural birthright in land, water, air and minerals without much thought for tomorrow. We seem to believe that new resources will be found and corrective and recycling technologies developed to solve our problems and fill our needs. With 70,000,000 autos and trucks in the United States, the environmental burden goes far beyond the materials used in their manufacture and affects the quality of life through stress, usurpation of space, and pollution (each year these cars put in the air 80 million tons of emission products).

The importance of wise decision making, reflecting an understanding of the effects of technology and consumerism and the realities of human ecology and environment, must be recognized and understood by each one of us. It is our individual decision on each everyday matter which adds up to become national problems...or answers. For example, when we purchase detergent we should stop to consider

its phosphate content. When we start out to go some place by car, we should remind ourselves of the alternatives (walking may be more healthful, and mass transportation is ultimately the best way to go to work in the inner city).

The problem is our present way of life. A new life style is called for, based on the requirements of "human ecology," and we must learn to live in harmony with nature and with our world. Finding the way is not the government's responsibility. It is not merely our neighbor's attitude and manner of living which need alteration, it is our own. As Pogo says: The enemy is us.

II. ENVIRONMENTAL/ECOLOGICAL EDUCATION

As man is the only living thing which can consciously manipulate, control, wisely use, preserve or destroy his environment, it is vital that he gain a knowledge of his actions--and their environmental consequences --from his formal and nonformal education.

Today we have the scientific and technological "know-how" to solve most if not all of our environmental problems. But decisions regarding man's use of his environment are seldom based on purely scientific knowledge. Virtually all of our decisions are based on economic feasibility, political expediency, social desirability, or religious belief. It has now become impossible to make wise decisions about our environment without an understanding of economics, political science, sociology, and the humanities, as well as science.

For this reason, concerned educators have begun to use the term environmental education in lieu of the long-standing "conservation education", "outdoor education", and "resource management". To use this new term is to take a holistic or integrated approach, to include interdisciplinary or multi-disciplinary concepts, methods, innovations, and institutions.

The Office of Education has chosen the broader term "Environmental/Ecological Education" (EEE), free of bias and conventional symbols, to describe the new thinking. EEE is the way to increase the individual's awareness, appreciation, understanding, motivation for action, and skills necessary to maintain his world and to enjoy life. To be successful in this important mission, American education must formulate a strategy that is addressed to the individual in his own environment. Such a strategy will require an increase in the level of wise and progressive decision making by all citizens in all communities on all issues.

Tomorrow's education must do more than develop a keener perception of the environment, it must also persuade a generation to be so conditioned to their ecosystem that their behavior will clearly indicate a high sensitivity to any activity which is potentially harmful to the environment. This conditioned response has to function as successfully as the psychomotor mechanism we use when we automatically stop our car at a red light or when we make a split-second decision concerning a yellow traffic signal.

All Americans should be given the opportunity through programs of environmental education to develop ecological values that are equal to or greater than the political, social, economic and religious values that have been the

basis for human decision-making processes. Changes in attitudes and behavior must come as expressions of individual choice, and hopefully our educational programs will provide sufficient information to create awareness of environmentally desirable options.

As we develop national goals, objectives and strategies in Environmental/Ecological Education (accepting the need for developing a new philosophy of life and new life styles) our political heritage calls for two major assumptions. They are:

- Educational activity must work within the framework of democratic government, which has as its tenet the freedom of individual choice and respect for the individual person.
- Efforts in Environmental/Ecological Education will not be dogmatic with respect to existing social or religious values--or coerce behavior--but will offer alternatives in a context of balance and perspective which may lead to better decision making.

III. THE ENVIRONMENTAL/ECOLOGICAL EDUCATION CONTINUUM

The Environmental/Ecological Education Continuum is a term that is used to describe the range of teaching-learning activities at each level of education that should be initiated if America is to learn to live within an ecologically sound context.

There is no question that such an environmental approach to education is underway throughout the Nation. Some individuals and communities working to accomplish an almost universally felt need in this area are well-informed, competent, confident and inventive in their approach. Most of these new educational activities, therefore, may and should be intitiated at the local and State level. Initiation and coordination of some activities will be appropriate for regional and national effort.

Many sources are available to assist local and State planning efforts in Environmental/Ecological Education. One of these is the Environmental Policy Act (P.L. 91-190), which has specified four comprehensive objectives:

- Promote harmony between man and his environment.
- Reverse the degradation of our environment and biosphere.
- Stimulate the health and welfare of man.
- Enrich the understanding of the ecological system and

natural resources important to the nation.

Each of these objectives has an educational component, either in the area of general education or for vocational and technical education. They serve as points of reference for development of neighborhood, community, county, State, regional and national goals.

A. Programs of Environmental Education

Programs of Environmental/Ecological Education will involve the entire American educational system, both formal and nonformal. A formal educational system in this context is one which is targeted on specific student-teacher relationships, through specific curricula. A nonformal system is less definitive and structured and is directed toward the public at large, or particular segments of the general public.

1. Formal Education: The formal education system, from pre-school through continuing education, will directly affect over 50 percent of the American population in this decade. Initially, the principal effort in environmental education should be that of developing supplementary materials that are designed

for the traditional curricula such as English, biology, mathematics and history. In addition, the development of new curricula for nearly all teaching and learning situations should be initiated. The approach is to infuse environmental/ecological concepts into all studies which lend themselves to changing man's life style to one of harmony with his world.

Another approach for school systems might be that of developing a special environmental curriculum through which the traditional subjects would be learned. A third approach, but less desirable at the primary and secondary level, would be the creation of a new course called environmental studies.

The challenge for formal education is the establishment of curricula with relevant ecological content, presented in a way to meet the present high motivation of students. This means that we must take advantage of all opportunities to relate learning experiences to actual environmental improvement

and problem solving in the community (frequently referred to as "issue orientation").

The school must divorce itself from the traditional classroom concept and expand its frame of reference to make full use of all community resources in the curriculum. Environmental study areas, museums, libraries, business and industry, and local government agencies all have a role to play in formal education. The school administrators and teachers should orchestrate these resources into a workable curriculum rather than concentrating on classroom materials. To accomplish this, it is imperative that a close working relationship (and frequent dialogue) be established among students, educators, businessmen, union leaders, and representatives of government at the local, State and regional levels. This will assist in formulating educational programs and activities that are relevant to real life issues...and give students the values, attitudes, and methods they will need to

solve present and future problems deriving from pollution, increasing population, growing technology, and other environmental issues.

If the schools do not accomplish these reforms, educators will continue to look on in dismay as highly active youth take to the streets in their frustration. "Confrontation" is a phenomenon which stems directly from the belief of young people that decisions affecting their lives and their future are being made by an establishment out of touch with the realities of human ecology.

As the implementation of Environmental/Ecological Education requires reform in our present formal system, we may wish to review some of the issues currently being considered.

These include:

- School programs would relate positively to local and national problems.
- Education would become more problem-oriented (and objective-oriented) rather than discipline-oriented.

- Processes of teaching and learning would be more important than content.
- Most effective learning may occur outside of the schoolroom, in business offices, industrial plants, parks, museums, and facilities of local and State agencies, with the school serving as the coordinating center.
- Education may be released from the dictates of credentials and time orientation.
- The "system" would increasingly reflect integration, continuity, flexibility, openness, feedback, experimentation, and acceptance of change.
- Education would accept accountability for its product: balanced and informed citizens who are capable of functioning effectively in society.

2. Nonformal Education: Reaching important segments of the general public (and in some cases the entire population of a locality) with Environmental/Ecological Education programs is a major responsibility of local and national media, volunteer agencies, business and

industry, and other private organizations.

It is essential that both local and network television, radio, film studios, newspapers, magazines, and book publishers contribute increasingly to informing the public about critical environmental problems and their possible solutions. In addition, the advertising and promotional resources of business and industry may be directed toward environmental/ ecological issues.

Many private and volunteer organizations look to school facilities and personnel--as well as to the children, their parents, youth, and others directly related to the educational activities of the schools--for full utilization of the programs and activities these groups offer. These programs presently include square dances, spring and winter festivals, musical and dramatic productions, nature hikes and bird walks, and similar activities. In addition, museums and libraries frequently arrange for special exhibits, films, or discussions of interest to general or special groups. Increasingly, as part of a comprehensive effort in environmental

education, these voluntary and private agencies may wish to orient their programs toward EEE objectives and to plan them in cooperation with local schools and colleges capable of providing assistance and publicity.

It would be desirable for a national organization to accept as its primary task the creative role of encouraging, advising and assisting private organizations and business to orient their considerable resources in nonformal education, information, promotion and advertising toward EEE objectives.

The role of the local school system as coordinator of nonformal education should be emphasized. Everyone can recall situations in their hometowns and communities where administrative staff and teachers of local schools have contributed their talents and services, as well as the school facilities, to worthwhile community projects such as curtailing drug abuse. A vastly broadened activity of this nature is called for if all the varied educational resources of any community are

to be coordinated in a nonformal EEE effort.

Nonformal environmental education, sparked by local schools, may include sponsorship of seminars, briefings for businessmen and community leaders, public forums and exhibits, informational programs and contributions to media, operation of centers for volunteer activities, and development of clearing-houses for environmental information. Correlation is the key to full utilization of community resources, and the local school system may be the best or only public agency available to carry out the responsibility.

B. Training Programs

The need for trained personnel in all branches of EEE is critical. This includes the training of educational personnel, environmental management technicians, and other professions in general.

1. Educational Personnel Training: Environmental education has emerged as the synthesis of widely diverse disciplines. The preparation of educational personnel requires recognition of the opportunity and the unique circumstances surrounding the

potentials for environmental education.

The present generation of educators faces a challenge in environmental education which is typical of this age. Frequently, students are as concerned, committed, and knowledgeable as their teachers. Through TV and other media, they may learn even faster than their teachers. This calls for a new learning-teaching style, a more informal instructional setting which is conducive to problem-solving approaches to learning, and, finally, extensive cooperation among all staff members of the school.

Teachers must be aware of environmental/ecological concepts and issues, and should be given the opportunity to develop necessary skills through in-service training programs. They should also be involved directly in the development of environmental curricula. Teacher training programs must also be redesigned to prepare new teachers for the challenge and responsibility of EEE. To be effective in this new role, the teacher must render support to and be supported from three areas:

- Administrators and Supervisors must be attuned to the new strategies required

in EEE. Well prepared teachers cannot work effectively if the system does not support them. This calls for a flexibility of response from the system and from individual administrators.

- The librarian must be prepared to keep the teacher informed of current, as well as new and developing resources in EEE. This is a necessary link between the individual school building and the local, State and national network of dissemination.
- The paraprofessional can provide valuable support both as a direct link to the community and as an informed assistant in a variety of roles within EEE. Whether they function as assistants in the library, in administration, in resource centers or in the classroom, they must attain basic awareness of the broad goals and objectives of EEE and of the significance of their task in the total program.

2. Manpower Training: The Administration has called for an expenditure of 10 billion dollars for the 1970's in the Nation's battle against pollution.

Most of these funds will go into construction and other forms of physical capital. If we are to utilize effectively these new facilities, we must make the decision now to invest in the training of people who will not only operate new plants but who are also capable of working effectively across the entire field of environmental management.

What is needed are carefully prepared short and long-range plans that examine the manpower need in qualitative terms, as well as evaluating present and required sources of supply. There is no single agency with clear authority for developing environmental manpower at the Federal level. Perhaps there shouldn't be. But there is certainly a need for coordination of the efforts in this critical field. Not to coordinate is to risk a serious duplication of efforts and resources and we have too few resources to waste.

Another aspect of the environmental manpower problem concerns the experience, training and educational requirements for employment in this rapidly emerging career field. Institutions are

doing an excellent job of training young men for productive employment in many technical fields, but the emphasis is on specific problem solving and analysis in very narrow areas. This is precisely what must be avoided in preparing people for careers that require a broad environmental perspective. Introducing change in a successful but specialized system is a difficult but necessary task.

OE must be prepared to search out and consider a number of alternative paths for developing this critical manpower. Therefore, research, evaluation and focusing a national spotlight on new, inventive and successful programs in the field of environmental manpower development will be emphasized by OE.

3. Environment and the Professions: An EEE dimension is also a necessity for professional education. As government has begun to adopt environmental quality legislation, the legal profession is now faced with an immediate need for specialized programs in environmental law in order to cope with the resulting litigation.

Certainly, those in the medical processions, the engineers, the economists, and the city planners will all need an understanding of the ecological principles that interface with their particular disciplines.

Since most professions have organized themselves into associations which hold conferences and exchange ideas in professional journals, the practicing professional can probably best be reached through his professional association.

Developing the curriculum base for the education of undergraduate and graduate degree candidates is, however, a much longer-range undertaking. Initial emphasis will be directed toward multidisciplinary change as well as the evolution of new undergraduate and graduage programs.

C. Determining Priorities

A year ago, few people recognized the full potential of the growing phenomena of environmental awareness. Fewer recognized the complexity of Environmental/Ecological

Education. The Commissioner of Education, in anticipation of the public's growing concern, called for a program of action. However, if the Office of Education and American education are to take full advantage of this unique opportunity, it is essential that the few who understand this complex field be identified and recruited to assist others to comprehend the problems and the opportunities. Those who best understand the problems and opportunities are distributed throughout the country in elementary and secondary school systems, on college or university faculties, in foundations, in business and labor, and in numerous voluntary organizations. Therefore, States should be encouraged to emphasize:

- Assessment of local education resources in and out of the school system
- Development of community/State/regional plans which will reflect the major needs of the regions.

To assist planning at the local level, OE recommends that early consideration be given to:

- Elementary and secondary education: supplementary materials, in-service teacher training curriculum development and demonstration projects.
- Preschool, middle school, and adult education: supplementary materials and teacher training.
- Public awareness (becoming more observant and sensitive to ecological problems, partly through reading, listening and reviewing of media materials on the environment), especially for age 14 and above.
- Environmental manpower development (vocational and technical) at institutions of higher education awarding two-year degrees.
- Basic environmental education courses for college freshmen and sophomores.
- Introduction of environmental/ecological concepts to professionals who will need to relate to these ideas (lawyers, engineers, city planners, etc.) in continuing educational programs.

Additional areas of concern are in the development of educational personnel to reach professionals in need of

environmental/ecological orientation; to develop an environmental/ecological consciousness in undergraduate and graduate students of the various professions; to assist in curriculum development and demonstration projects at the preschool, middle school and adult level; to conduct programs of environmental awareness for pre-school and elementary children; and to carry out retraining programs for environmental manpower technicians.

The Educational Continuum·Environmental/Ecological Education
(for States to use to identify their existing resources and future priorities)

Activity \ Grade Level	Pre-School to K	1-6	7-9	10-12	13, 14	15, 16	17-19	Cont-inuing
Supplementary Materials					■	■	■	
Curriculum Development								
Pilot Demonstration Projects								
Environmental Awareness					←	—	→	
Teacher Training					■	■	■	
Educational Personnel Development								
Environmental Manpower Development	■	■	■	■		■	■	
Environmental Professional Development	■	■	■	■	■			

Planning is not considered necessary for grade levels marked in black

IV. DEVELOPING AN EDUCATIONAL RESPONSE TO THE PROBLEM

The Office of Education has taken steps toward defining its leadership role in the area of Environmental/ Ecological Education. On January 23, 1970, Commissioner Allen expressed his understanding of the urgency of the problem and the necessity for an educational thrust toward its resolution. In a speech delivered before the American Council of Learned Societies, Commissioner Allen stated that: "The key to human survival is education." He stated further: "The responsibility of the government (national, State and local) is to lead...to set an example, to encourage the growth of public understanding of its activities, of public concern, of public participation...to educate, to replace confusion with knowledge, to replace concern with commitment and action." In addition to government, he said, participation of scientists, social scientists and humanists is needed.

He thus urged the establishment of Environmental/ Ecological Education as a national priority, reflecting his belief that maintenance of "Quality of Life" is a goal so crucial it must be addressed by all levels of the population and through all types of formal and nonformal education.

The Commissioner made Environmental/Ecological Education an agency priority and implemented this policy decision by establishing an EEE Studies Staff, a planning group to establish a five-year plan, and a temporary Task Force composed of representaives from each of the offices and operating Bureaus.

The EEE Studies Staff and the planning group have carried out a general assessment of education activities related to the goals and objectives of Environmental/Ecological Education. Experts in this field have been consulted and tentative plans developed. It has become increasingly clear to observers at the national level that considerable activity and innovation had already been initiated at the local school and community level all across the country.

Many of the most highly innovative projects at the local level deserve being called to the attention of educators in other parts of the country. The identification and spotlighting of many of these special projects, to serve as models for national consideration, sets the stage for a major role for OE in the year ahead. This approach also encourages greater participation at the local level in the vital creative and developmental aspects of environmental education.

However, if individual communities are to achieve the recognition they deserve at the State and Federal level, it is essential to provide mechanisms that reflect their interests, needs and resources. Recognizing this, Commissioner Allen invited each State to develop its own State Plan for Environmental/Ecological Education.

A. The State Plan for EEE

Increasing the level of participation at the local level achieves two specific objectives. It emphasizes the need to develop Environmental/Ecological Education that is relevant to the particular needs of the community, and--at the same time--it carries out the mandate of the President and Congress to decentralize governmental structure (while giving coherence to the great variety of programs of the Federal agencies now involved in environmental education). The State plan should, as a beginning:

- Provide comprehensive State recognition and support for local models by clearly defining the support and coordination activities that can be provided by State, national and other organizations.

- Develop priorities within the State for local, State and Federal funding.
- Develop programs to increase environmental awareness and disseminate information developed by other school systems.
- Coordinate all governmental and private environment activities, such as volunteer youth projects, with formal and nonformal environmental education activities of school and colleges.

B. School Systems

Each school system within a State will be asked to originate action-oriented environmental education curricula that will involve the entire range of community resources (the school system itself, local government, community organizations, and business and industry) and, where feasible, such area resources as State and National Parks, reclaimed open space in urban areas, and community colleges and universities.

A number of school systems within a State where there are promising programs may be designated as demonstration projects to serve as models.

Each school system will undoubtedly want to coordinate its activities with local or area plans for environmental action and manpower training, in order to benefit from resources which may be identified in a State plan for curriculum development activities and teacher training.

C. Environmental Action

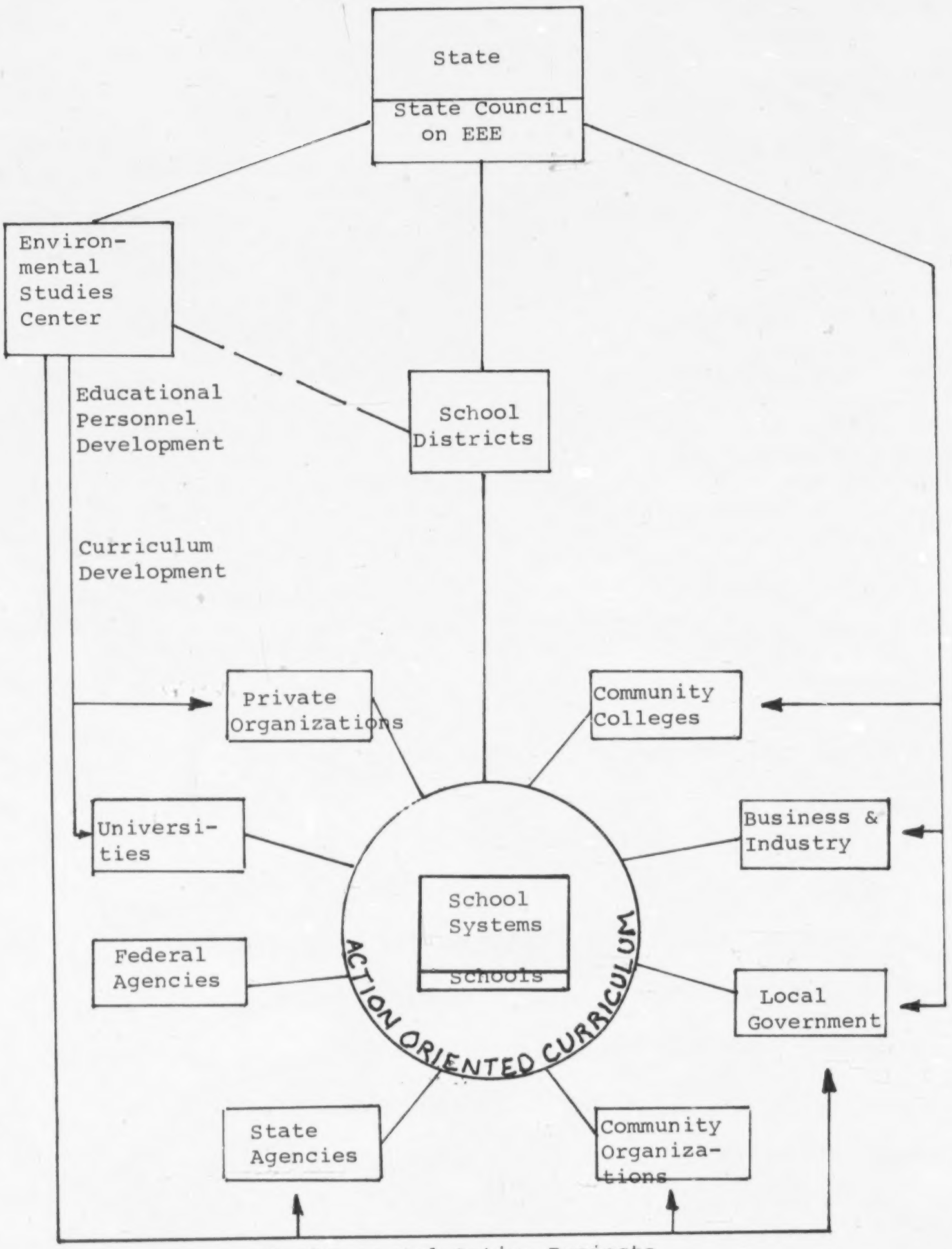
Programs of environmental action should be developed at the local level by community organizations, local governments and other appropriate organizations. Ideally, these activities will be coordinated with educational programs. For instance, an environmental action program to measure the pollution levels of a local river system could be coordinated by a State agency, with data collection by high school students as part of their curriculum and by volunteers from community organizations, and with data analysis by the students and faculty of a nearby community college as part of a manpower training program for environmental technicians.

D. State Councils of Environmental Education

A State plan would call for heads of the various State agencies to serve on a State council for environmental education, to coordinate planning and to assist local groups. Staff support should come from each of the agencies participating on the council. A principal recommendation is that an environmental study center be designated or developed in each State. The center would provide the primary staff support for the education section of the council and would also be the focal point for coordination, reference services, conferences, seminars, curriculum development, and other State-wide activities.

The State plan will consider, as a matter of course, the various other factors of Environmental/Ecological Education ranging from public awareness to manpower training. It is, therefore, a workable plan for the best use of local, county, State and Federal resources and funds.

One Alternative For
Organization For State Plans



V. FEDERAL SUPPORT FOR LOCAL INITIATIVE

Active community participation in planning and creating educational innovation will be emphasized by the Office of Education. The State Plan for Environmental/ Ecological Education provides a voluntary and practical mechanism for recording and interrelating the needs and resources of individual communities. The State Plan--and particularly the planning process--will permit communities and States to identify problems, resources and needs.

The Federal role will be two-fold: First, to coordinate dissemination, and to support activities on a regional basis through the Regional Assistant Commissioner for Education; and second, to coordinate the activities of the various Federal agencies in an overall environmental education program.

A. The Regional Role

The decision by OE to assign local Environmental/ Ecological Education Program responsibility to the 10 Regional Assistant Commissioners of Education is based on the need to insure direct and frequent communication between Federal, State and local educational agencies across the

Nation. The strategic location of the Commissioner's personal representatives in each of the 10 regions will permit local school leaders to seek and receive assistance for developing local and State programs in response to national goals. At the same time the Office of Education will be placed in a key position to identify, evaluate and select innovative and exciting activities developed at the local level and then call these worthy models to the attention of educators across the Nation. This direction, and some other coordinating aspects of EEE, will be the responsibility of the Washington office.

Each Regional Assistant Commissioner of Education will assist each State* in his specific geographical area to develop its own plan and will assist State educational agencies to:

- Evaluate environmental projects within the region.
- Assist with the dissemination of information within the region and between regions.

*Responsibility for working with the District of Columbia will be retained in Washington.

- Determine priorities and specific projects within the regions for state and/or Federal funding.
- Assist with the coordination of activities within ecological areas (watershed, etc.) that cross OE regional boundaries.
- Develop, with EEE core staff in Washington, overall OE plans and support for environmental education.

B. National Coordination

It is necessary to create programs and working relationships between established government agencies for the purpose of more effectively utilizing existing skills and minimizing duplication of effort. Throughout the Federal government there is a vast wealth of well trained and experienced individuals with skills directly relevant to Environmental/Ecological Education.

The Office of Education's special effort in coordination will identify individuals and agencies with experience in planning. This cooperative effort will receive OE's support and is considered essential if the appropriate resources are

available to the Federal government to be effectively utilized by the Nation's schools in environmental education.

Many years ago, Switzerland recognized the need for creating or strengthening national unity and spirit in a population of diverse extraction (with language and customs derived from their respective French, German and Italian origins). Of course all these citizens of the mountain state had some cultural and historical background in common, but it was also seen that even small children noted and identified with one great heritage they all enjoyed...the natural beauty of the land itself. From a very early period, school children were consciously directed toward a love and understanding of their environment through specially designed educational nature walks and outings.

The value and considerable potential of this outdoor learning experience has been long recognized by OE, the National Park Service in its interpretive programs, and other agencies of the Federal government. In the decade of the Seventies it is anticipated that OE and Department of Interior personnel will assist local school systems in the Nation to identify and develop adequate space or

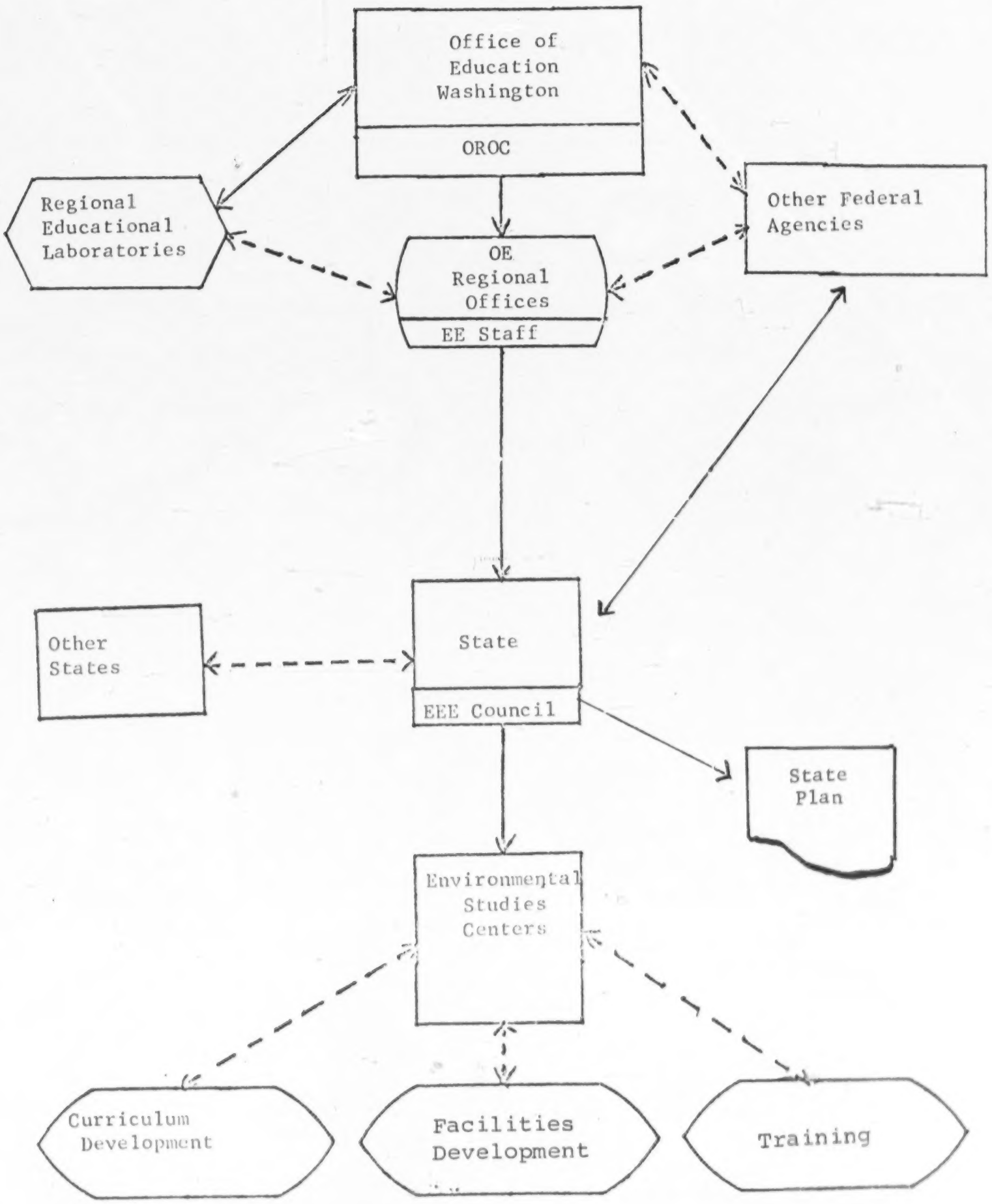
appropriate facilities for use as Environmental Study Areas.

Coordination of OE and environmental health planning carried out within the Department of Health, Education and Welfare, serves to illustrate a second example of human resource conservation. Joint planning, particularly in manpower development (such as training environmental health technicians) promises to minimize duplication of efforts, time and cost.

The planning, administration and evaluation of the Manpower Development and Training Act provides an additional example of joint cooperation between two Federal agencies in environment management. The training of individuals for employment in water pollution control represents a joint planning effort on the part of at least three Federal departments, (Labor, Interior, and HEW), several agencies and even local community water districts. Similar programs of close cooperation may be cited in areas that are the concern of the Departments of Commerce, Agriculture, Transportation, HUD, and many of the highly specialized agencies such as the National Science Foundation. Possible

areas for joint program planning between OE and the National Aeronautics and Space Administration include space technology transfer to the field of education. Buckminster Fuller's concept of "Space Ship Earth" and the closed life support system constitutes a powerful tool for instructing young people in fundamental ecological principles.

The Regional Role



VI. AN EARLY EMPHASIS ON EEE WITHIN THE OFFICE OF EDUCATION

As the Congress and the President establish the re-direction and re-emphasis of national policy toward a program of Environmental/Ecological Education, the Office of Education is creating preliminary operational procedures to support the EEE effort and is reprogramming some of its existing funds and activities in keeping with the intent of the national policy.

Specific staff activities of the Office of Education during 1970 that contribute to the initiation of a national environmental education effort are the following:

- The Commissioner has asked all Chief State School Officers to develop State plans for environmental education.
- One State (New Jersey) has been chosen to serve as a model project, and the Washington Office of OE is working closely with this State in the development of its plan.
- OE's plan for environmental education will be discussed with the Chief State School

Officers.

- OE's Regional Assistant Commissioners will be asked to work with the State in their regions during the summer on the development of their plans.
- Each Regional Assistant Commissioner will be asked to identify one model State in his region. A significant amount of OE's effort during FY 1970 and FY 1971 will be directed toward these States so that they may provide assistance to the other States in the region.
- OE will hold a National Conference in September, 1970 in Washington in order to provide assistance to the States in their initial efforts to develop State plans. Most of the conference will be devoted to workshops chaired by the Regional Assistant Commissioners. Consultants from the private sector, and personnel from other Federal agencies will be present.

In addition, two Office of Education program activities will provide direct support to the development of local planning efforts.

- Funds will be provided for up to 10 Regional teacher teach-ins, in the late summer of 1970. The primary purpose will be to provide teachers with additional resources for environmental education programs at the local level for the 1970-71 school year. The teach-ins will also serve to begin a dialogue between the local and the State level in the development of State plans.
- Teach-ins for administrators of manpower training programs will be conducted by the Regional Assistant Commissioners of Education. The teach-ins will be held during the fall semester of 1970 to assist administrators in planning for the development of innovative training programs in environmental management and in identifying sources of Federal State and local funding and technical

assistance. Personnel from the State departments of education in the region will be invited to participate in the programs to help insure intra-regional coordination and cooperation in carrying out a total environmental education program. Follow-up sessions to assess the progress made by the participants and to find solutions to the problems encountered will be conducted in late winter or early spring, 1971.

Other 1970 activities planned by the Office of Education are:

- Support for the development of an educational television program on environmental education. The Office of Education has funded the initial phases of an education and dissemination program by the Corporation of Public Broadcasting. A center has been established to focus the resources of television and radio to educate the public concerning the need and

resources for improving the quality of the environment.

- Support for the development of training programs in environmental management. The Office of Education has developed a major proposal for a comprehensive training and placement system in the emerging field of environmental management. The proposal, currently being considered by the Department of Labor for funding under the Manpower Development and Training Act, is designed to provide interchangeable technicians, trained to function in multiple occupational roles in a broad field of environmental management. The unique and inventive aspect of this project is that it provides access for the 16 year old and other young adults to post-secondary occupational education. This access is provided by the development of a new bridge over which a potential dropout

can pass directly into post-secondary education, through special programs of early admission into the local community college or similar post-secondary schools.

- Research and development. An initial research and development effort will support pilot demonstration projects in environmental education and the development of supplementary teaching materials. Most of the projects will begin during the summer of 1970.

In addition, the Office of Education will use existing authority to provide direct program support for local efforts. The major resources include:

- The Cooperative Research Act for the development, testing, and evaluation of curriculum and supplementary instructional materials and for the support of pilot or experimental programs and projects.
- The Educational Personnel and Development Act for training of elementary, secondary, and post-secondary teachers.

- The National Defense Education Act for training of prospective college and university teachers in environmental fields and for the purchase of equipment for environmental studies at all levels.
- The Higher Education Act for assistance to developing institutions desiring to introduce programs in environmental studies and to local colleges and universities for community environmental improvement projects.
- The Elementary and Secondary Education Act for assistance to States for the identification, development, and implementation of programs and projects at the elementary, secondary, and post-secondary levels, and under the new Title IV of that Act for technical assistance to schools and institutions planning and developing programs and for dissemination of information and materials on environmental education.

- The Vocational Education Act (Innovative Vocational Education) for instructional program development, including research in vocational and technical education at the secondary and post-secondary levels and in teacher training in all branches of environmental management technology.

Passage and funding of the Nelson-Brademas bill for an Environmental Quality Education Act will allow greater flexibility in the area of Federal assistance for public education and community based projects; will permit in-service and preservice training for business, industry, and local government leaders; and may allow for preservice training of elementary and secondary school teachers (activities for which the Office of Education does not have specific authority). These additions to the legislative mandate of the Office are highly desirable in view of the goals, objectives and proposed strategy for environmental education. However, the absence of such authority will not prevent the Office from carrying out a meaningful program in environmental education.

It is generally agreed that the primary significance of this bill or of any education bill in this area is that of providing a recognized basis for a continuing and coordinated program effort.

GSA DC 70-15771